Using Digital Video in Early Care and Education and Early Intervention

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Note:
This resource guide accompanies a face-to-face workshop and is updated frequently.

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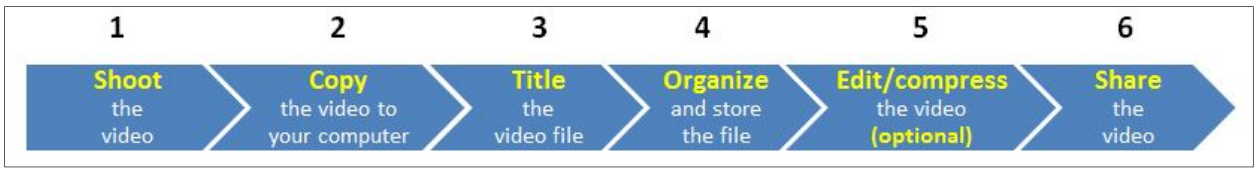
Introduction:
The skills that you need to learn

Video has been used for decades to enhance both service delivery and professional development activities. In the past, video equipment was bulky, expensive, and complex, so its use in the fields of early care and education, education, special education, and other services designed to support individuals with disabilities was limited. But thanks to recent innovations, we now have access to the use of *digital video*, which is more affordable, more accessible, and easier to shoot, edit, store, and share. These innovations include the introduction of small, inexpensive, easy-to-use, low-cost digital camcorders that connect easily to computers, free (or low-cost) easy-to-use applications for editing and sharing video files, small, inexpensive storage devices, and accessible ways to distribute files. Digital video is now accessible to most everyone, opening up exciting new opportunities for many uses.

In order to succeed in using digital video, you need to learn a specific set of skills. This workshop and resource guide is organized around the skill sets for using video and the skills are listed in the table below. The first set of skills is related to the things you need to do to prepare to use digital video:

Getting Ready to Use Digital Video
Identify ways in which you want to use digital video
Decide what equipment you need and purchase it
Learn how to shoot good video
Develop consent forms
Obtain written, informed consent

The second set of skills represents the concrete tasks, or work flow, involved in producing and managing digital video files:



These skills may seem daunting, but they are actually very manageable when applied with guidance, time, and practice. This resource guide will provide a good deal of guidance, but you will need to find a way to make the time and practice the new skills. It will be worth it – digital video has the unique power to transform how we capture, understand, reflect on, and share our experiences.

The many ways to use digital video

This section provides a brief overview of the many ways that digital video can be used to enhance service delivery as well as professional development, technical assistance, and dissemination activities.

Ways that Direct Service Providers Use Digital Video

Evaluation and assessment

Service providers use digital video to: document observations; capture a child's behavior as the child participates in typical classroom or home routines, activities, and relationships; ask families to video tape the child participating in typical family routines; for an assessment that involves multiple providers, have one assessor video the child without the presence of an intimidating number of unfamiliar people – the video can then be used to gain the input of practitioners who did not attend the assessment session; post the video on an online portfolio; maintain video portfolios for children; collect video clips of child skills at multiple points in time.

Progress monitoring

Video can be a very useful tool for collecting and organizing observational information for ongoing authentic assessment. In additional, families report that they appreciate having the video documentation of their children's progress.

Family information, collaborative planning, informational support, and joint problem solving

Videos of children can be watched by families and practitioners together to plan intervention strategies and solve problems together. Families report that watching videos with their early intervention team helps them feel like an equal member of the team. Video shot at a home visit can be shared with family members who were not able to attend the visit. Video can be shown at IFSP or IEP meetings to celebrate progress. Strategies used at a preschool can be recorded and shared with families for use at home.

Video Modeling

Video self-modeling, video peer-modeling, etc.

Team consultation

Video can help families, teachers, early intervention practitioners, and other providers benefit from the expertise, perspectives, and ideas of other team members. Video allows other team members to see the child "in real time," in the context of everyday routines, activities, and relationships, so practitioners have enough information to offer input.

Self-reflection

Some providers video their interactions with children and families and watch them later to better understand their strengths and areas for improvement.

Supervision/reflective supervision

Videos can be powerful tools that enhance reflective supervision and peer-to-peer support.

Program Assessment/Evaluation

Video can be used to document, monitor, and assess early care and education settings and practices.

Ways that digital video is used in professional development, technical assistance, and dissemination activities

Illustrate practices

Video can be used to clearly illustrate exemplary strategies.

Tell a story

Video (and perhaps photos as well) can help tell a story about an aspect of a provider's or family's experiences that has a useful message for other providers or families. Digital storytelling is a personal story that is illustrated by video, photo, and other digital media.

Present tutorials

Video can provide instruction in how to do things, e.g., use online systems, strategies for working with children.

Provide orientation to web sites, meetings, jobs, processes

Video can be used to help orient people to new things.

Provide a foundation for consultation and coaching

Video is an excellent foundation for capturing and sharing rich information that can be used as a foundation for coaching and consultative relationships, locally or over a distance. Providers can capture and share video recordings of the application of skills and submit it for feedback.

Disseminate news and updates

Video can be used as an engaging way to share information.

Public awareness

Video can be an effective way to market events and activities.

Archive professional development activities

Video can capture and preserve training sessions, workshops, classes, and meetings so they can be viewed by those who could not attend, or watched as refreshers.

Collect, analyze, and report data

Video can be used to capture analyze and report program information,

Conducting research and evaluation

Note that if video is to be used for research, an IRB review will likely be necessary.

Ilustrations of the uses of video in early care and education

Results Matter Video Library

http://www.cde.state.co.us/resultsmatter/RMVideoSeries.htm

This site includes more than 150 video clips related to early intervention, early childhood special education, and early care and education that you can watch online or download for use in professional development activities. The clips are divided into several categories:

1. Early Care and Education – In these videos teachers share stories and illustrate the ways in which they are using video in their work.
2. Early Intervention: These clips illustrate ways in which early interventionists are using video in their work. "Reflections During the Final Home Visit" is a favorite.
3. Clips for Practicing Observation, Documentation and Assessment Skills: Includes a wealth of clips of children participating in typical preschool routines and activities. They are produced to be used in professional development activities.
4. General Interest: In this section, you'll find an overview of "What is Authentic Assessment."
5. Using Technology for Authentic Assessment: Includes clips illustrating how teachers are using digital video, iPhones, and iPods to document children's learning and progress. There is also an illustration of sharing digital video with families in "Aurelius Reading at Naptime" and a tutorial, "Using MPEG Streamclip to Edit Video Files," which shows how to use a free application to edit and compress digital video files.
6. Practices Here and There: The videos in this new section highlight practices used by programs participating in the Results Matter Video Project, such as coaching, dialogic reading, and The Incredible Years.
7. iPads In Early Childhood: The videos in this new section illustrate a number of ways that iPads are being used in early care and education and early intervention settings.

Desired Results *access* Project Video Library

http://www.draccess.org/videoinitiative/

The more than 30 videos on this page illustrate several aspects of early care and education, including assessment, family support, and inclusion. Several of the videos illustrate the ways that teachers have been using digital video to enhance their practices and achieve better
outcomes for young children and their families.

1. General Interest: These clips cover a range of topics that of interest to early childhood practitioners and family members.
2. Tips on Using Video: These clips illustrate ways in which early childhood practitioners are using digital video enhance their practices and achieve better outcomes for young children and their families.

3. Practice Clips: These clips were produced to be used to provide staff with opportunities to practice a variety of skills, including observation, documentation and assessment.

Other Examples of Early Childhood-Related Video on the Web

Child Outcomes Step-by-Step:

http://www.cde.state.co.us/resultsmatter/RMVideoSeries_GeneralInterest.htm#top

http://www.draccess.org/videoinitiative/

http://www.fpg.unc.edu/~eco/pages/videos.cfm

The Center on the Social and Emotional Foundations for Early Learning (CSEFEL) Videos:

http://csefel.vanderbilt.edu/resources/videos.html

Technical Assistance Center on Social Emotional Intervention for Young Children (TACSEI) Pyramid Model Story Project:

http://www.challengingbehavior.org/do/pyramid_model/pyramid_model_story_project.html

SpecialQuest Multimedia Training Library:

http://76.249.171.46/specialquest/trainingmaterials/searchvideos.lasso

Head Start Center for Inclusion Videos:

http://depts.washington.edu/hscenter/videos

Washington Sensory Disabilities Services Video Topics:

http://www.wsdsonline.org/deafblind/space/

Center for Early Literacy Learning (CELL) Videos:

http://www.earlyliteracylearning.org/ta_pract_videos1.php

Autism Speaks ASD Video Glossary:

http://www.autismspeaks.org/video/glossary.php

Reading Rockets Videos and Podcasts:

http://www.readingrockets.org/podcasts

Videatives:

http://www.videotives.com/

Consent and Applicable Policy

Assure that families understand and consent to the use of video

ALWAYS obtain the family's written consent before capturing video, still images, or sound.

- **Always** use a consent form and obtain informed, written consent. Assure parents that video will only be used for the specific purposes outlined in your consent form.
- Be sure that your consent form is explicit about the ways that the video may be used. For example video might be used in:
  - Service delivery (e.g. for assessment, family education, consultation, coaching, supervision);
  - Professional development materials;
  - Public awareness;
  - Project/program reporting;
  - Research (for this you will need an IRB approved consent form and process)
- In addition to a consent form, it is often useful to offer parents an information sheet that describes the "who, why, and what" of videotaping and how videos might be used.
- Be sure to have your consent form approved by your program's administration and, if applicable, legal department.
- Provide information early on, while building your relationship with the family, to help families understand the uses and benefits of video; don't wait until a visit in which you will want to video. It is recommended that you have personal conversations with families about the uses of video rather than sending a form home with children to be signed. During a conversation you can better explain the benefits of video and answer questions that families might have.
- Share with families the many potential benefits of using video, for example:
  - A way to get perspectives and ideas from all team members.
  - A strategy to equalize the roles of family members and practitioners as they both become collaborative "watchers" and assessors. Video allows the entire team (including the family) to look at the child together and encourages collaboration in developing individualized plans and solving problem. Video shot at a home visit can be shown to other family members who did not attend the visit.
  - Documentation of their child's development and progress (a copy of all videos should be offered to the family).
  - Tools for professional development and supervision to help develop highly skilled providers.

Note: In addition to obtaining parents' written consent for their children and themselves, obtain written consent for all others everyone who will appear in your videos, including staff members, volunteers, etc.

Assure that your consent forms, policies, and procedures are in compliance with local, state, and federal regulations

In general, all policies and practices related to the use of video, photographic, and audio recordings need to be reviewed and approved by your agency's administration and/or legal representation to be sure that they are compliant with:

- ❑ Policies of your program and agency.
- ❑ State and regulations.
- ❑ Requirements of funders.
- ❑ Practitioners who work in educational agencies or institutions or early childhood education programs need to comply with the regulations of the Family Educational Rights and Privacy Act (FERPA). According to FERPA, information recorded in any way, including, but not limited to, handwriting, print, computer media, video or audio tape, film, microfilm, and microfiche may be considered part of a child's educational record. For more information, visit: http://www.ecfr.gov/cgi-bin/text-idx?SID=25d40e6f3db54bf8154be4f574812b0d&tpl=/ecfrbrowse/Title34/34cfr99_main_02.tpl
- ❑ Providers that are part of health systems will need to be sure that their consent form, policies, and practices are compliant with the Health Insurance Portability and Accountability Act (HIPAA) regulations. For more information visit: http://www.hhs.gov/ocr/privacy/

Two thoughts on how long should video files need to be maintained by educational agencies:

1. According to FERPA [99.10(e)] the educational agency or institution, or SEA or its component shall not destroy any education records if there is an outstanding request to inspect and review the records under this section. http://www.ecfr.gov/cgi-bin/text-idx?SID=25d40e6f3db54bf8154be4f574812b0d&node=34:1.1.1.1.33.2.134.1&rgn=div8
2. Some experts recommend maintaining the child's educational record for five years after the child leaves the program because programs may be audited up to five years after the child leaves the program.

Sample consent form

Note: FERPA sections 99.30 and 99:31 provide guidance on consent.

Consent forms need to be customized for each organization and for the specific purposes for which the agency is requesting permission for using video. Below is sample wording from a form that was used for the purpose of capturing video to be used for both direct service *and* public awareness, professional development, and/or project reporting.

Video/Audio/Photo Consent

I voluntarily grant my permission to [The Name of Program] and its staff members and contractors to record video, photographs and/or audio recordings of me and of the child named below for whom I am the child's parent or legal guardian for these purposes: 1) to document my child's learning, development, and how your child participates in everyday routines and activities; and 2) to be used by [The Name of Program] for the purposes of professional development, public awareness, and/or project reporting in printed or electronic form, including video, film, radio, television, website, newspapers, magazines, and other media and in any form.

I understand that all rights, title, and interest in these video, photographic, and audio recordings belong exclusively to [The Name of Program] which reserves the right to edit the images. The employees, officers, staff, and providers of [The Name of Program] are hereby released from any legal responsibility or liability for disclosure of the above information to the extent indicated and authorized herein.

In the event consideration is paid or received for use of the recordings, I shall in no way be entitled to any part of such consideration.

I understand that if I so request, the [The Name of Program] will provide me with a copy of the recordings made.

I understand that this consent is voluntary and it may be revoked in writing at any time, but the revocation does not negate an action that has occurred after the consent was given and before the consent was revoked.

I acknowledge that I fully understand the contents of this consent and am under no disability, duress, or undue influence at the time of the signing of this document.

For a child:

Child's Name in Full (Please Print): _____

Name of parent or legal guardian (Please Print): _____

Address: _____

City, State, Zip: _____

Phone: _____

Parent/Guardian Signature: _____Date: _____

For an adult:

Name (Please Print): _____

Address: _____

City, State, Zip: _____

Phone: _____

Signature: _____Date:_____

Choosing a low-cost, handheld digital video recording device

Keep in mind that there are many good choices in all price ranges – the model that is best for you depends on what you ultimately want to do with the video and which features you want or need. For instance, if your primary purpose is to use video to enhance service delivery activities, you should be able to purchase a relatively low cost camcorder ($200 or so) and will need only a few accessories (e.g., SD card, mini-tripod, padded case). But if you need higher quality video or better audio, you need to increase your budget and step up a notch or two (or three!).

DISCLAIMERS:

1. Camcorder models come and go; they are frequently updated or discontinued and new models pop up all the time. Because of this, I cannot purchase and test all new models – in my advice below I note when I have actually used the devices or if my recommendations are based on reviewing the manufacturer's specifications and consumer reviews.
2. In order to make an actual recommendation for a camera, I would need to know about a number of particular circumstances which would influence what I would recommend for you. For example, in order to make a useful recommendation, I need to clearly understand the environments in which you will be shooting, the experience and skill levels of the people who will be using the equipment, and your end uses for the video.
3. This document reflects my thinking this week – it is likely to change next week as I learn which devices become available and which are discontinued.

The following table lists features that you should consider when purchasing a low-cost ($200, give or take) handheld digital video recorder. Camcorder models come and go; they are frequently updated or discontinued and new models pop up all the time. Because of this, it is not possible to offer recommendations that will last for an appreciable time. However, in the list below, I do recommend which features I prefer for early care and education and early intervention providers.

Features to Consider in Low-Cost Handheld Video Recorders	Why these features might matter and what I recommend for early care and education and early intervention providers
Format	For most uses in early childhood, small file sizes are desirable so the ability to shoot in SD (standard definition) is more desirable than in HD (high definition). HD has a better image but also much larger file sizes. Some camcorders allow you to shoot either format – this is a very desirable feature. **My recommendation**: Use a device that shoots in a variety of settings, including SD (640 x 480) – also referred to as VGA.
Video compression	Find out what video format the camcorders record in and if that format suits your needs for your end product, editing, posting, and playing. Not all formats work equally well on PCs and Macs. And not all formats can be imported into the video editing software that you like to use; you may need to transcode file formats or choose a different editing application. The most common formats lately include .mp4 and .mov and also newer file formats produced by mobile phones, e.g., 3GP, 3GPP, MP-4.

Features to Consider in Low-Cost Handheld Video Recorders	Why these features might matter and what I recommend for early care and education and early intervention providers
	My recommendation: If possible, use a device that produces .mp4 files.
Record in different file sizes	Some camcorders have only one setting. Other camcorders let you choose between two or more file sizes, so you can choose the largest size for high-end productions, such as when your final product will be a HD DVD and smaller sizes for posting on the web, emailing, etc. Being able to choose the file size is a very desirable feature. For early childhood providers, if there is only one setting, be sure it shoots small file sizes. **My recommendation:** Use a camcorder that has multiple settings, including (640 x 480) – also referred to as VGA.
Battery	Does the camcorder come with its own unique type of battery (e.g. rechargeable li-ion) or can you use batteries that can be readily purchased anywhere? Which do you prefer? **My recommendation:** I refer rechargeable batteries.
Battery charging mechanism	If the batteries are rechargeable, find out how to recharge them, e.g., charging the battery with an external charger or by plugging the camcorder into your computer or a power outlet. If you recharge by plugging the camcorder to a computer or power outlet, you can't use the device while the battery is charging. If the device uses a rechargeable battery, you might want to buy a spare so that when your battery loses its charge you have another to replace it before you can get around to recharging. **My recommendation:** It is convenient to charge via an external charger and keeping a spare battery on hand.
Tripod port	This is an essential feature. You need this port on the bottom of the camcorder so you can screw it into a tripod. **My recommendation:** be sure that your device has a tripod port or that it fits a device, such as the iStabilizer, that adds a tripod port to most mobile phones and iPods.
Zoom	Zooming is very important so you can capture the action without being obtrusive. All of the camcorders in this low-cost class offer digital rather than optical zoom. The higher the zoom, the better. In this class of recorders, the range of zoom is usually between 0 and 5x.Try to get a camcorder with at least 4x zoom. The higher the zoom the more flexibly you can use the camcorder. **My recommendation:** If possible, use a device with at least 3 x zoom.
Storage	Amount of internal and external memory. Some video recording devices same the video files in built-in internal memory while others use external memory, e.g., SD cards. Having removable storage is a very important feature, especially if two or more people will be sharing the camcorder. When the camera is transferred from one person to the next, you can simply remove your card to avoid loss of files. **My recommendation:** I prefer devices that save to SD cards. If you use a device with built-in memory, get one with at least 8 GB.
Storage capacity	Storage capacity refers to how much video (measured in length of time or bits of data) can be stored in the camcorder before needing to transfer the video files

Features to Consider in Low-Cost Handheld Video Recorders	Why these features might matter and what I recommend for early care and education and early intervention providers
	to another storage device. The amount of video (as measured in minutes and hours) that can be stored on a device depends on how large the files are that the device produces. **My recommendation:** Use a device that has at least 8 GB of memory. NOTE: You should not store video on your recording device; rather, use the device to produce video clips, then copy the video files to a computer.
File size of one minute of video	This is the size of one minute of video. File sizes are not absolute: the size of a video can vary depending on factors such as color saturation and the complexity of what you record, e.g. movement of the subject being recorded, but is fairly consistent within a given device. File size matters for storage and portability. You can use software to compress the file to a smaller size, but that adds an additional step and also might lesson the quality of the clip. In my tests of camcorders in this class, the file size of one minute of video varied from around 5 MB to 150 MB. **My recommendation:** You want a device that produces files that are as small as possible while maintaining adequate quality. It would be great to have a device that creates files that are less than 30 MB per minute. Devices that produce files that are 70 MB or more a minute might necessitate that you add the step of compression for certain uses.
Still photos	Some camcorders enable you to take still photos while others don't. If you want to be able to take still photos, definitely choose a camcorder with a dedicated still photo function. With some camcorders you can capture a frame of video as a still, but please note: a photo captured from a frame of video is not of high quality. **My recommendation:** Use a device that produces video and photos.
Manual lighting settings	Also referred to as exposure controls. Some camcorders enable you to switch the lighting settings so that you will get better results in different situations, e.g., indoors, outdoors, etc. while other camcorders use only one automatic setting that adjusts (theoretically) to various lighting conditions. **My recommendation:** In the low cost market, these features are not all that high quality, so if they don't have these settings, it shouldn't be a deal breaker.
Display monitor size	This is the size of the viewer. **My recommendation:** Be sure that the monitor is large enough for you to be able to compose and record the shot comfortably.
Does the display monitor swivel	This indicates whether or not the display can be rotated in various directions so that the videographer can shoot from different angles or so that a person being shot can monitor themselves. This is a very important feature if you will be included in the action. By using this feature you can easily see if you are capturing what you want to capture. Without it, it's hit or miss. A swivel display is a very desirable feature. One disadvantage is that such a feature makes some devices large enough that they don't fit in the pocket of a pair of pants. **My recommendation:** If you can find a suitable device with a swivel display, use it.

Features to Consider in Low-Cost Handheld Video Recorders	Why these features might matter and what I recommend for early care and education and early intervention providers
Input for an external microphone	Camcorders in the class do not generally record great audio, so having an input for an external microphone can be a very useful feature because it can enable you to capture better audio. It can also enable you to use a wireless microphone so that you can position the microphone at a distance to your subjects, but keep the microphone close by. **My recommendation:** This feature is rare in camcorders in this class, but if you can find one, it's a great feature.
Editing software	Some camcorders come with their own editing software. While almost all camcorders can download files to both Macs and PCs, not all of the editing software that comes bundled with the camcorders works on both platforms. **My recommendation:** This is not an essential feature because there are plenty of free and low-cost software applications available.
Accessories included	This lists what comes with the device. **My recommendation:** Be aware of "extras" that you will need to purchase separately, e.g., a tripod, SD card, padded case.

Recommendations for Practitioners to Use to Capture Video in Classrooms and Home Visits

As I mentioned earlier, it is difficult to recommend low-cost, handheld devices because models are frequently updated or discontinued and new models pop up all the time. And because many people have cell phones that can record video, over the past few years many manufacturers of this class of camera have lost sales and have discontinued products that were good choices, e.g., Flip Cameras, Sanyo Xacti, etc. Following suit, two models that I've liked were recently discontinued, the Panasonic HX WA03 and the Sony Bloggie. Two devices you might consider are the Canon Vixia Mini and the Zoom Q2.

- Canon Vixia Mini (I've used this one) (http://www.usa.canon.com/cusa/consumer/standard_display/minicam/)
- Zoom Q2 (I've used this one) (http://www.zoom.co.jp/products/q2hd)
- Notes: The Canon captures better video than the Zoom Q2 but does not have a zoom feature; instead it has an option for a fisheye lens.
- The Zoom Q2 has poor battery life and does not use a Li-on rechargeable battery, but two AA batteries; it also has a very flimsy plastic casing.
- The Zoom Q2 has much better audio that the Canon Vixia Mini, but neither camera has an input for an external microphone. Both should do okay in a home visit in which there is not a lot of background noise, but you may not get adequate results in a classroom. They should do a good enough job for more teachers and providers, but if very clear and loud audio is extremely important to your purposes, you may need: 1) a camera with an input for an external microphone and you need to purchase an external microphone, usually a wireless lavaliere, and/or 2) a shotgun microphone and camera mount.
- In addition to the camera, you'll need:

- a tripod;
- at least 1 class 10 SD card, I recommend 32 or 64 GB;
- Camera bag; and
- At least one extra battery and for cameras in which the batteries get charged in the camera, an extra battery charger.

Recommendations for Research and Producing Professional Development Products

When producing video to be used for research or professional development, audio is at least as important as the video image, and in many cases, it is more important. For these purposes I recommend that you use a camera with an input for an external microphone and you need to purchase an external microphone.

For more than $1,000:

- I use a JVC HM 150U Video Camera which I love, but is no longer available. Although I have not used it, the JVC GY-HM70U HD looks GREAT - $1,095 - http://www.bhphotovideo.com/c/product/943263-REG/jvc_gy_hm70u_gy_hm70_hd_camcorder.html
- Sennheiser wireless microphone system (I've used this one and love it) $729.95: http://www.bhphotovideo.com/c/product/618738-REG/Sennheiser_EW_100_ENG_G3_B_Evolution_G3_100_Series.html

For over $500:

- Panasonic HC-V750 Full HD Camcorder - $547.00 (I have not used this one) http://www.bhphotovideo.com/c/search?Ntt=Panasonic+V750&N=0&InitialSearch=yes&sts=ma&Top+Nav-Search=
- Polsen ULW-96 Camera-Mountable UHF Wireless System/96-Channel (640 to 664 MHz) $349.95 - (I have not used this one) http://www.bhphotovideo.com/c/product/1012672-REG/polsen_ulw_96_camera_mount_uhf_wireless.html

For under $500:

- Canon VIXIA HF R500 Full HD Camcorder (Black) - $199: (I have not used this one) http://www.bhphotovideo.com/c/product/1023206-REG/canon_vixia_hf_r500_full.html
- Audio-Technica PRO 88W-830 Camera Mountable VHF Lavalier Pro 88W VHF Wireless System - $149: (I have not used this one) http://www.bhphotovideo.com/c/search?N=10068061&InitialSearch=yes&sts=pi

Notes:

- In addition to the camera and mic, you'll need:
  - a GOOD tripod and perhaps a monopod
  - at least 2 class 10 SD cards, I recommend 32 or 64 GB
  - Camera bag
  - At least two (3 would be better) extra batteries

- The Canon is not highly regarded in low light situations.
- For wireless mics, UHF is better than VHF
- I reference these products at B & H rather than Amazon or other online retailers because you can actually talk with a live person on the phone and get even reduced rates going with either their educational or government divisions – ask me about this.

Other Resources

The following web sites offer reviews and guides for purchasing camcorders based on class of equipment and cost:
http://reviews.cnet.com/camcorder-buying-guide/

http://www.camcorderinfo.com/

http://www.videomaker.com/grid/camcorders/

And don't forget to consider iPods, iPads, and Smart Phones!

Remember to Budget for Accessories

In addition to purchasing a recording device, you may need to purchase, or at least consider, these accessories:

- ❑ SD card
- ❑ extra battery
- ❑ padded case
- ❑ tripod
- ❑ an external microphone (if your camcorder has an input for these).

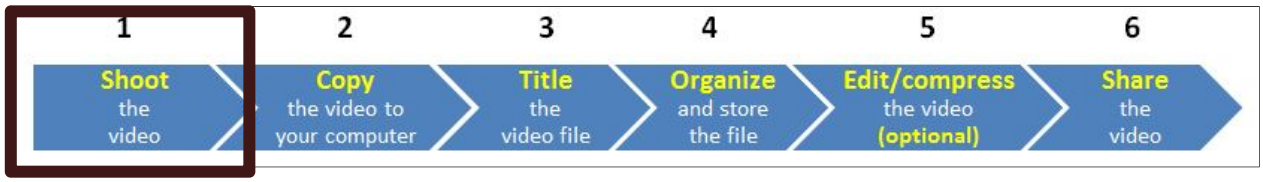
Using Apple Devices to Capture Video

Apple's iPhone, iPod Touch, iPad, and iPad mini each device has its own unique advantages and disadvantages. The device works best for some providers won't work best for others, so consider the advice of others, but ultimately you'll have to decide which device is best for you. The chart on the next page lists some of the pros and cons of each device. This information is current as of February 13, 2015, but keep in mind: Apple rolls out new models and discontinues existing models from time to time. For the most recent information, visit an Apple store or visit: http://www.apple.com

Device	Cost	Pros	Cons
iPod Touch 16 GB	$199	• It's the smallest of your choices small and can fit in your pocket. • It is the most inexpensive choice.	• It has the smallest keypad and display: are they large enough for you?
iPad mini Wi-Fi 16 GB	$249	• It has a larger keypad and monitor than the iPod Touch, but it's not as bulky as the full-sized iPads. • It is the second most inexpensive choice.	• It's not small enough to fit in your pocket.
iPad mini 2 Wi-Fi 16 GB	$299	• It has a larger keypad and monitor than the iPod Touch, but it's not as bulky as the full-sized iPads. • It is the second most inexpensive choice.	• It's not small enough to fit in your pocket.
iPad mini 3 Wi-Fi 16 GB	$399	• It has a larger keypad and monitor than the iPod Touch, but it's not as bulky as the full-sized iPads. • It is the second most inexpensive choice.	• It's not small enough to fit in your pocket.
iPad Air Wi-Fi 16 GB	$399	• It has the largest keypad and display which some people find easier for typing and the larger display is more convenient when looking at photos and videos with others.	• Large, heavy, and bulky and is often not nimble enough for being used flexibly indoors and out. • The large size distracts children when taking photos or videos. • This is the most expensive device.
iPad Air 2 Wi-Fi 16 GB	$499	• It has the largest keypad and display which some people find easier for typing and the larger display is more convenient when looking at photos and videos with others.	• Large, heavy, and bulky and is often not nimble enough for being used flexibly indoors and out. • The large size distracts children when taking photos or videos. • This is the most expensive device.

My Recommendations:

- ❑ **For <u>early education and child care staff to use</u> to capture video and photos, I recommend the iPod Touch or the iPad mini with Wi-Fi:**
  - If the iPad Touch' smaller display is large enough for your vision and you are good enough (and happy enough!) at typing on its small keypad and controls, the iPod Touch might be a good choice for you. You can keep the device in a pocket, which is very convenient for spur of the moment observations, taking it outside, etc.
  - If you want a larger display for your vision, easier typing, watching things with others, then the iPad mini would be a good choice for you.
- ❑ **For <u>instructional use with children</u> I recommend the iPad Air with Wi-Fi (with a sturdy case!):**
  - The iPad mini also works well with children, but its smaller display makes it a bit more difficult for children to share.
  - The iPad Air rather that the IPad Air 2 would be fine for children's use – save the $100!



Getting started using video with your team

If your team has not used video before, consider some of the following steps.

- **Have each team member learn how to operate the camcorder.**

  There are a variety of ways to learn: play with it, read or refer to the manual, have a team member teach and coach you, ask your kids for help. Here are some tips:
  - Read the quick start guides and manuals that come with your camcorder.
  - Lately, many camcorder models come packaged with only a brief guide for getting started, but a more in-depth manual is available. Some manufacturers put the manual in the camera; others post it on the web – search on the web for a comprehensive manual for your camcorder by using search terms such as "manual for Panasonic HX-DC1."
  - Search the web for questions such as: "How to edit MP4 video files?"
  - Search for demonstrations of your camcorder in YouTube.
  - Search the manufacturer's support page.
- **Have a team discussion.**

  Have your team brainstorm the various purposes for which you will use video. Have team members share what they need to see in the videos if they were to review them to offer consultation. Agree to a system for sharing the camcorder. Develop policies and procedures around the team's use of video. Invite parent representatives to offer their perspectives on your use of video.
- **Learn and practice shooting skills.**

  Set aside time at a team meeting to take turns videotaping in the classroom or a simulated home visit. Avoid just shooting still shots, shoot movement (team members can pretend they are kids or families). Watch the practice videos that you take as a team and offer each other accolades and constructive feedback on video techniques. Try shooting indoors and outdoors.
- **Develop consistent (if not uniform) systems for naming files and storing files.**

  See suggestions in this guide.
- **Develop materials for parents.**

  Create a consent form and get it approved by the administration/legal department of your agency. Consider producing an information sheet for families on the benefits and uses of video tape. Remember that you may need to have these print materials translated for families who do not read English.

Basic tips for capturing quality video clips

You don't need to worry about producing broadcast quality documentaries. But a little quality will make your videos more useful. Here are some general guidelines.

❒ Learn how to operate your camcorder

Refer to the User's Manual that came with you device (or that can be found online) to learn how to operate the basic functions, including how to:

- charge and/or change the batteries,
- turn it on and off,
- start and stop recording,
- zoom in and out, and
- connect the camcorder to a TV monitor and use it in VCR mode.

❑ Learn how to use your camera's settings

Some video recording devices have a menu that you can go to adjust the kind of video that you will shoot. If you device has these settings, learn how to use them. Two examples:

- One such adjustment is referred to a frame size (or resolution). For example, you can capture very large HD files or much smaller VGA files. I recommend that you avoid shooting the larger frame sizes – although the quality is better, the file sizes will be enormous and much more difficult for you to manage and share. I recommend that if given choices between one VGA setting and a number of HD settings, choose either the VGA setting or the smallest of the HD settings. I suggest that you experiment by capturing exactly one-minute of footage in a couple of the settings and then copy the clips to your computer. Compare the file sizes and the quality. Use the smallest file that also is good enough, e.g., the viewer can clearly see and hear what's happening.

  Tips for Apple Device Users: Apple devices produce relatively large video files (about 75 MB per minute). Although the built-in camera does not enable you to lower the frame size, there are a number of low costs or free apps that enable you to do this, e.g., Blux Movie.

- If your device enables you to adjust the sensitivity of the microphone, you might want to experiment with boosting it some. Again, experiment: shoot a few clips at various levels, copy them to your computer, compare the results, and choose the level that you feel is best.
- Some devices have settings for "effects," such as shooting in black and white, sepia, etc. I recommend that you do not use any effects.

❒ ALWAYS capture video horizontally – and ALWAYS means ALWAYS!

Trust me on this. If you're not convinced, watch: http://youtu.be/Bt9zSfinwFA

Tips for Apple Device Users: Apple devices allow you to shoot video horizontally or vertically. ALWAYS capture video holding your device horizontally with the home button to the right!

❒ When feasible, use a tripod

Reason 1: To frame the shot so you capture the right content (including yourself)

You want to capture the action that you and other viewers will need to see – this sometimes includes yourself interacting with a child and their family members or other caregivers. Because you'll be in the action, you need to position the device so that it is stable and at the right distance and at the right angle to capture everything. Frame the shot so you avoid "cutting off people's heads" or shooting their backs rather than fronts.

Reason 2: Avoid camera shake

Shaky video is usually every viewer's primary complaint about "bad" video. A tripod will enable you to avoid shaky footage.

Tips for Apple Device Users: Apple devices do not have a port so that you can screw in a tripod, but there are some good alternatives:

For iPhone and iPod Touch: The iStabilizer is a spring-loaded mount that connects a standard ¼ x 20" port to your device so you can use any tripod with it. It works with most smart phones and costs less than $20 from online stores.
http://www.istabilizer.com/store/products/mount.html
Another good choice is the Joby GipTight GorrillaPod Stand
http://joby.com/smartphones/griptight-gorillapod-stand

For iPad (full size): iPads do not have a tripod port and are very heavy, so you need a very well made mount to attach a tripod AND you need a very strong and well-made tripod. There are a lot of mounts available, with new ones coming out all the time. My favorite one that I've found at a reasonable price is the Ultimate Support Hyperpad that will enable you to stabilize your iPad at a variety of angles to a variety of surfaces, e.g., table, pole, microphone stand, and desktop. Expect to pay around $60 from online stores.

See the "Choosing Equipment" section.

❒ Frame the shot

Be sure to capture the action that you and other viewers will need to see. Avoid "cutting off people's heads" or shooting their backs rather than fronts. With young children it is sometimes helpful to shoot while sitting on the floor.

❒ Be aware of lighting

You will get better results by being aware of the natural lighting and using it to your advantage, e.g. avoiding shooting directly into a window or sunlight.

❒ Be a gracious visitor AND be sure to capture "good enough" video

When we visit families in their homes, we want to behave as gracious visitors and avoid any behavior that would make it seem as though we are "taking over." It is important to do that and at the same time, be able to gently make suggestions about capturing that will help you capture "good enough" sound and visuals. Talk with the family about the goals and benefits of capturing video and the conversations should come easily and naturally. For example, to capture "good enough" sound, you might ask if it would be okay to turn down the volume of a television or radio while capturing video. In another example, if it wouldn't disrupt the authenticity of the routine or activity that you'll be capturing, if you're sitting in a spot on the living room floor that doesn't allow you to place to tripod appropriately or

that means the camera will be shooting into the bright light of a window in the background, you might ask if you and the family can sit elsewhere on the living room floor.

❒ Adjust for lighting

You will get better results by being aware of the natural lighting and using it to your advantage, e.g., avoiding shooting directly into a window or sunlight.

❑ Do what you can to capture adequate quality sound

Audio is at least as important as the visuals, and in some cases more important. Low-cost hand-held devices are not great at capturing audio, but if you do what you can to accommodate for the environment, you should be able to capture "good enough" sound. Here are some tips:

- Position the device as close to the subjects as possible, while also enabling you to capture all of the action without leaving someone out of the shot.
- Place the recording device so that the subjects' mouths are facing the camera.
- Place cameras away from loud adjacent sound sources, e.g. avoid placing the device right next to an open window with someone mowing the lawn nearby.
- See the notes above under "Be a gracious visitor AND be sure to capture "good enough" video."
- If your device has an input for an external microphone, consider purchasing and using one. A good external microphone is often better than the devices built-in microphone – but be aware: with some external microphones the quality of the sound is better, but the volume is lower! If you use an external microphone that can connect to the device via a cable, then you can position the device far enough back to capture the visuals, but keep the microphone closer to the subjects.
- If your device enables you to adjust the sensitivity of the microphone, you might want to experiment with boosting it some.

❑ Keep it authentic

Try to capture the child in context of typical routines, activities, relationships, and places. Most often, you will capture the child participating in activities with others. Only try to capture the child participating in a routine or activity alone, if that is what typically happens.

❒ Keep the end in mind

Always keep in mind your purpose for videoing in the first place. Plan the shot and make your decisions based on achieving your goals. Remember this: the subject matter should be the focus, not your videographer prowess – shoot in a way that you let the subject matter be the center of attention and avoid calling attention to the video production.

❒ To interact or not interact, that is the question

Some providers always talk to the children while video recording them, asking them to do things or comment on what they are doing; the effect of this might be to "disrupt" authentic behavior, and actually work against your success in capturing authentic skills and functioning. Try to adopt the role of a silent documenter, rather than a prompter.

❒ It gets easier (and better) with practice

Take some practice video and watch it with colleagues and get feedback on the technical merits of your work. Ask your colleagues what they might need to see in order to provide consultation on children. Practice enough so that you will be well at ease operating the camcorder.

❒ Be prepared

Be sure that you keep blank tapes, charged batteries, a power cord, a charger, and consent forms on hand. For home-based providers, it might be useful to purchase a battery charger that can be plugged into a car so that batteries can be charged while traveling from visit to visit.

❒ Avoid making a big production out of shooting

If you are practiced and prepared, videotaping should be a natural and comfortable process.

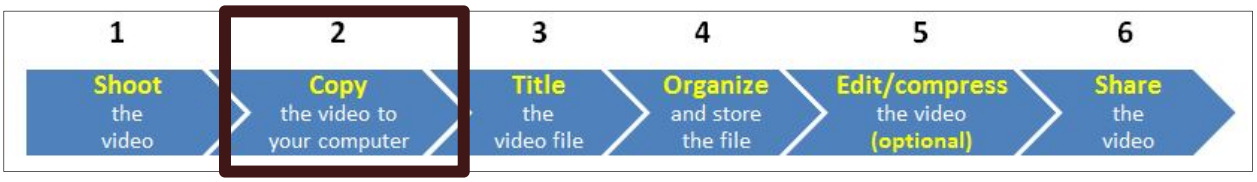
A Couple of Resources:

In case you'd like to learn more:

- Vimeo Video School is a fun place for anyone to learn how to make better videos. Start by browsing the Vimeo Lessons, or find specific video tutorials created by other Vimeo members:

  http://vimeo.com/videoschool?utm_source=newsletter&utm_medium=email&utm_campaign=Dec2010

- Videomaker's tutorials may be more sophisticated that what you need, but they are a good source of information. http://www.videomaker.com/video/tutorials



Uploading: Copying your clips from your camcorder to your computer

You need to learn how to copy files from your device to your computer. Look for information in the quick start guides and manuals that are available for your device and search the manufacturer's support page.

NOTE: Do not used your device to store video files: copy them from your device to your computer and then delete them from your device frequently (e.g., at least weekly).

Steps for getting clips from a low-cost, hand-held camcorder to your computer

The steps vary somewhat among devices, but are similar in nature. Understanding that there are differences among various models and brands, following is a GENERAL process.

1. If your camera records to a SD card and you have a built-in or plug-in card reader, remove the SD card from your camcorder and insert it into your computer. If you don't have a card reader or if your camcorder records to internal memory, plug your camcorder into the computer using the USB cable or built in USB connector that came with your camcorder.

   Note: if you'd like to purchase a card ready, buy a good one. I recommend the SanDisk MicroMate SD/SDHC Memory Card Reader, about $13 from online stores.

2. Once you insert your card or connect your device, it will behave as a flash drive (thumb drive). When the card opens up in a window select "Open Folder to View Files." If the card doesn't appear, on a PC look for it in "My Computer." On a Mac, look for an icon on the desktop that looks like a removable drive. It may be titled "NO NAME."
3. Double click on the folder labeled DCIM (this is an acronym for "Digital Camera Images").
4. There may be one or more folders in the DCIM folder. Double click on the folders that you find in the DCIM folder to find which one(s) store your video files. The folder with the files will typically reference the name of the camcorder or manufacturer. For example, the folder in a Sanyo camcorder might be named "100SANYO."
5. Create a temporary folder on your desktop and copy the video files from the camcorder to your computer by dragging and dropping the files to the temporary folder that you created.
6. Double check to make sure that the files copied successfully to your computer by playing one of them and looking to be sure that the files are large in size as measured in MB).
7. Once you're confident that the files copied successfully, if you desire, you can easily delete all of the files from your camcorder before ejecting the device by dragging the files to the recycle bin on a PC or the trash can on a Mac. NOTE: in some camcorders it is recommended that you delete the files from the camcorder rather than when it is plugged into your computer.
8. Proceed with the steps in the following section for naming and organizing your files.

Tips for Apple Device Users:

There are many ways to copy your photos and videos from your Apple devices to your computer. One thing to keep in mind: every time Apple updates its operating system, these procedures are prone to change!

To copy your video files from your device to the computer that you use to sync your device there are several options:

- On a Mac, when you sync your device, sync the video or photo files from your camera roll to iTunes/iPhoto.
- On a Mac, connect your device to your computer and in your applications folder, open up Image Capture.

To copy your video files from your device to a computer that you do not use to sync your device to, there are several options:

- Save your photos and videos that you shoot on your device to iCloud and open iCloud on the computer to access these files.
- Use one of the many apps that enable you to transfer/copy files from Apple devices to any computer that is on the same internet network. I use the free app Wi-Fi Photo Transfer to do this.

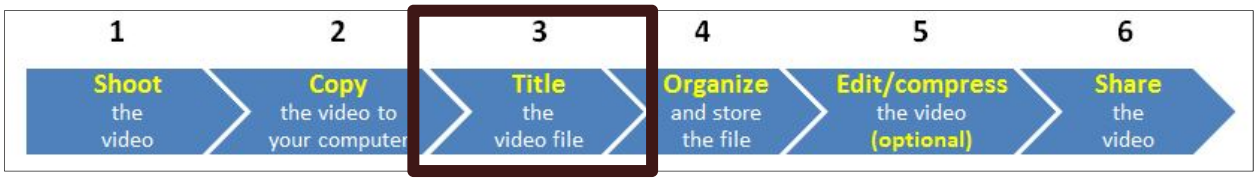
PLEASE NOTE: The options above are general – you may need to modify the steps based on the specific computer, set-up, and operating system that you are using. For more information from Apple on how to import your photos and videos for specific computers and operating systems, visit: http://support.apple.com/kb/HT4083

Useful iPod Touch resources:

1) The iPod Touch manual: http://manuals.info.apple.com/en_US/iPod_touch_3.0_User_Guide.pdf
2) Apple's iPod Get Started Page: http://www.apple.com/support/ipodtouch/getstarted/
3) Apple's iPod Support page: http://www.apple.com/support/ipodtouch/

Useful iPad resources:

1) The iPad manual: http://manuals.info.apple.com/en/ipad_user_guide.pdf
2) Apple's iPod Get Started Page: http://www.apple.com/support/ipad/getstarted/
3) Apple's iPod Support page: http://www.apple.com/support/ipad/



How to watch your videos before you title them

Before you title your clips, you'll want to watch them so you know what you have.

Basic software for watching video on the web

- ❑ Please remember that applications and operating systems are updated continually and new software is published all the time. Software changes rapidly. Check often for new versions and updates. If you can't play a particular media file, check for updates for the program that you're using to play it.
- ❑ Reliable Internet browser – There are lots of choices: Firefox, Safari, Chrome, Opera, Bing, Internet Explorer, etc. Here is a good article comparing the various browsers: http://www.informationweek.com/news/internet/browsers/showArticle.jhtml?articleID=219400649&pgno=1&queryText=&isPrev
- ❑ Adobe Flash Player – For viewing Flash video; most computers have this software loaded. Be sure to install the most recent update. If you don't, visit: http://www.adobe.com/shockwave/download/index.cgi?P1_Prod_Version=ShockwaveFlash)
- ❑ JavaScript – Required for viewing many web sites; most computers have this software loaded. Be sure to install the most recent update. Available at: http://www.java.com/en/download/manual.jsp)

For watching your video files

There are scores of free media players available. If you install the two free players below you will be able to most of the audio and video files that you will encounter.

- ❑ VLC Media Player – A great free multimedia player for both Macs and PCs that plays a very large assortment of audio and video formats: http://www.videolan.org/vlc/
- ❑ QuickTime – A great free multimedia player for both Macs and PCs that plays certain kinds of audio and video files; available from http://www.apple.com/
  Optional: For editing talks, you might also want to purchase the $29 QuickTime Pro update from www.apple.com.
- ❑ For Macs only:
  - o Perian is a free, open source QuickTime component that adds native support for many popular video formats: http://www.perian.org

- Flip4Mac® WMV Components for QuickTime: Allows you to import, export and play Windows Media video and audio files on your Mac: http://www.telestream.net/flip4mac-wmv/overview.htm

- For PCs only:
  - If you can't play a video, you can download and use gSpot to establish what video and audio codecs are required to play the file video: http://www.videohelp.com/tools/GSpot
  - K-Lite Codec Pack is a collection of codecs and related tools. Codecs are required to encode and/or decode (play) audio and video. The K-Lite Codec Pack is designed as a user-friendly solution for playing all your movie files. With the K-Lite Codec Pack you should be able to play 99% of all the movies that you download from the internet: http://www.free-codecs.com/download/K_Lite_Codec_Pack.htm

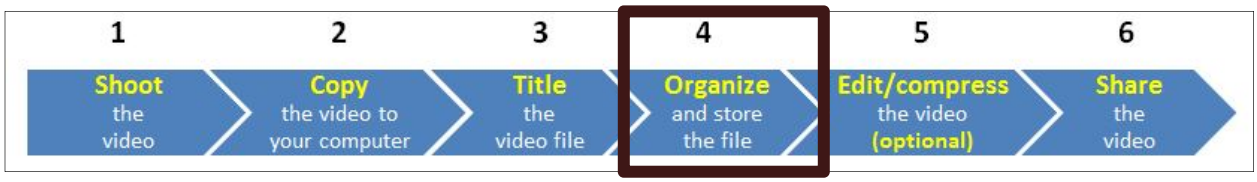
Titling your video files

Once you begin copying clips from your camcorder to your computer, you will probably start amassing a good number of video files. It is extremely important that you create a consistent system for titling (naming) your files.

Label Your Video Files

- Develop a consistent system for naming your video files.
- Be sure that each file name ends with the correct suffix for the kind of file produced by your camcorder (e.g., .mp4)
- Do not use slashes (/) to separate the sections of the file name. Avoid using a lot of punctuation; periods, dashes, and/or underscores are okay.
- For a variety of reasons, some IT specialists feel that it is best not to have any spaces in the file names, while others say it is fine. Consult with your IT Department and follow their advice. The example on the following page uses spaces.
- On the following page is a sample scheme for naming files that one program decided to use. A significant advantage to this scheme is that it creates very readable file names that line up nicely in folders for easy referencing.

What should be included in the file name?			
Date the clip was shot	**Child's name or initials**	**Content**	**File type suffix**
Month, day, and year, each in two digits, separated by periods, with no extra spaces, followed by a dash (or underscore), followed by one extra space. *Example*: March 10, 2015= 03.10.15 – Alternative: Some educators prefer the year/month/date format so that the files stay consecutive throughout the school year: March 10, 2015= 15.03.10 –	First name with the first letter capitalized, followed the capitalized first letter of the last name, followed by a space, then a dash (or underscore), followed by one extra space *Example*: John, Smith = John S –	Brief description of what is on the clip that makes it useful (e.g., behaviors, activity, assessment item, IFSP/IEP outcome, domain, etc.). The description should have as few words as possible, but enough detail that if you read the description two months later, you would recall what is on the clip. Capitalize the first letter of each word with no spaces between or after *Example*: John ate lunch and interacted with a number of other kids = AteLunchWithFriends	(e.g., .mp4, .mpeg4, .mov, .avi, etc.) The file format the identical way that the file was named when imported from the camcorder (e.g., .mp4, .mov) – be sure that the file format is always preceded by a period with no spaces afterwards. *Example*: .mp4
Final File Name (with extra spaces): 03.10.15 – JohnS – AteLunchWithFriends.mp4 **Final File Name (with NO extra spaces):** 03.10.15 –JohnS–AteLunchWithFriends.mp4 **With the date formatted as year/month/day:** 15.03.10 –JohnS–AteLunchWithFriends.mp4			



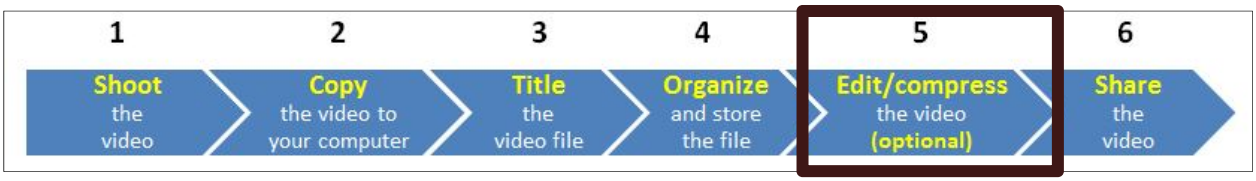
Organize and store your video files using folders

Be sure to develop a system for organizing your clips into folders. Create an intuitive and useful system that will organize the clips in ways that you will be able to find clips easily in the future. Folders might be organized in a variety of ways: by children, items on an assessment instrument, etc.

Here is an example: Deb is a preschool teacher who teaches a morning and an afternoon class. She has two folders, one labeled "A.M. Class Video" and "P.M. Class Video." In each folder, she has a subfolder with the name of each child in that class. This system helps Deb store and easily locate her video clips.

Some teachers are exploring the use of tagging their video files for easy access. There are different solutions for PCs and Macs. Try searching in your browser for a question such as "How can I tag video files?" You can see an example of teachers using this strategy in Using Video with the DRDP Assessments at: http://draccess.org/videolibrary:

Store and back-up your files: If you are going to be accumulating many video files, I recommend that you find a way to store and/or backup your files other than on your computer's hard drive. Buying an external hard drive to store and/or back up all of your clips is very affordable; start with a 500 GB external hard drive. Models change all the time so it's difficult to recommend a model. Be sure the drive you purchase is compatible with your platform, i.e., PC or Mac.



Edit/compress your video

Basic video editing

Every editing program works differently, so this section cannot review basic editing processes, but it can help you decide what kind of video editing applications you want to try out. In general, for your work in early childhood, you will almost definitely want to be able to do these three basic editing functions:

1) Cutting unwanted footage from clips: you might do this so you are sharing only the important footage.
2) Joining multiple clips: you might want to join multiple clips if there was an interruption during a video recording session or to join clips from different visits to show progress over time.
3) Compressing your video: you might do this to make the file smaller so it is easier to share – it is very easy to compress a file by 75% or more. This is very useful for long clips.

Other video editing functions that you might want to do include:

4) Adding captions or titles
5) Adding transition effects between clips (e.g., a cross-dissolve)
6) Adding an audio track, e.g., background music
7) Converting video to other file formats

Important Notes:

- Not all editing applications, especially the free ones, will enable you to do all of the functions that you want them to do.
- Be sure that you choose software that matches the kinds of video files that your camcorder produces (e.g., mp4, .mov,) and your platform (e.g. Mac or PC). For instance Windows Movie Maker will edit certain kinds of PC-friendly files, but not others. Likewise, iMovie on macs will enable you to import and edit certain file types and not others.
  - For information on which file formats work with Windows Movie Maker: http://windows.microsoft.com/en-US/windows-vista/Import-video-files-pictures-and-audio-into-Windows-Movie-Maker
  - For information on which file formats work with iMovie: http://support.apple.com/kb/HT2264

  You can also convert the file format of certain files so that they can be used in editing programs (refer to the Free Apps document for a list of apps that convert file types. Some of my favorite free file conversion apps are MPEG Streamclip for Macs and PCs, Format Factory for PCs only, and Smart Convert for Macs only).

- Some camcorders come bundled with editing software, either "in-the-camera" or software that you can install. For example, with the Panasonic HX-DC1 you can trim and join clips in the camcorder. See the manual.
- For both PCs and Macs, the $29 QuickTime Pro update from www.apple.com enables basic editing functions and lots of other tricks as well – it can join clips, trim away unwanted sections, export into different file types, but does not have the capacity to produce polished products with titles and stylistic transitions..
- For Macs, Apple offers iMovie which comes equipped on new Macs or can be purchased as a part of the iLife Suite of applications at http://www.apple.com/

Video editing applications

The table below lists examples of commonly used video editing applications. Remember that you need an application that will handle the video file format that your camcorder produces).

Platform	Free	Low End	Mid Range	High End
PC	MPEG Streamclip Windows Live Movie Maker (part of Microsoft Essentials) Lightworks Avidemux VSDC Free Video Editor	QuickTime Pro Wondershare Video Editor Vegas Movie Studio Pinnacle Studio Corel VideoStudio Express/Pro Cyberlink PowerDirector 7 Video Edit Magic/Express/pro	Adobe Premier Elements	Adobe Premier Avid Media Composer Vegas Pro
Mac	MPEG Streamclip iMovie (comes bundled with Macs) QTCoffee Blender Kdenlive Jahshaka (CineFX) VideoLan Movie Creator (VLC Project Page) Avidemux	QuickTime Pro Wondershare Video Editor	Final Cut Express Adobe Premier Elements	Final Cut Pro Adobe Premier Avid Media Composer

Please note: The table above lists just some examples of the editing applications that you might consider; no endorsement is implied.

So….what editing program should you use?

If basic and free is what you want: As you see in the table above, there are lots of good video editing applications that you can purchase from low-cost (under $100) to expensive ($1000 or more). But there are also some excellent free applications. For early intervention and early care and education providers I can recommend MPEG Streamclip (http://www.squared5.com/), a free application that works on both Macs and PCs that you can use for a number of basic video editing functions: trimming excess footage, cutting and pasting, and joining multiple files. And once you are finished editing, it can compress your clips so that they are smaller (hence easier to share), and then export the finished product to a variety of different file formats. MPEG Streamclip does not enable you to insert titles or fancy transitions between scenes – if you need those features you'll need to look at other applications. But if you need editing functions of titling and transitions, you'll need to look elsewhere.

Key tips for getting stated using MPEG Streamclip:

- Download MPEG Streamclip only from one site: http://www.squared5.com
- You need to have the free QuickTime Player (www.apple.com) installed on your computer in order for MPEG Streamclip to work.
- Once you install MPEG Streamclip, plan to spend about 30 – 45 minutes completing a video tutorial that I produced that walks you through the basic steps in using it. You can watch this tutorial online or, better yet, download it and keep it on your computer for easy reference: www.cde.state.co.us/resultsmatter/RMVideoSeries_UsingTechnology.htm#top

Try the basic software that comes with Macs and PCs: Any advice that I might give depends on a lot of variables, such as: what computer platform and operating system you are using (e.g., PC vs. Mac), the video file format that your camera produces (e.g., .mp4, .mov, .avi), which specific editing functions you need, and what you intend to do with your final product. That being said, most PCs come equipped with Windows Movie Maker which can do basic editing functions on certain kinds of digital video files. Macs come equipped with iMovie which is a great editing program, but again for certain kinds of video files.

If you need more: Try free trials of the kinds of applications listed in the table above.

Note: While not stable yet, the cross-platform, still-in-development VideoLAN Movie Creator (from the VLC media Player folks) is looking for funding and once funded should be a good tool: https://www.videolan.org/vlmc/

Online Video Editing:

There are a number of online video editing applications available, with more being added all the time. Below are just a few you might check out. NOTE: I have not tried out all of these, so no recommendation is implied.

- Online Convert: http://www4.online-convert.com/
- Mixmoov: http://www.mixmoov.com/
- Pixorial Editor: http://www.pixorial.com/
- Stashbox Video Editor: http://www.stashspace.com/video-editing/online-video-editor.stm
- Stupeflix: http://studio.stupeflix.com/
- Flixmaster: http://www.flixmaster.com
- YouTube Editor: http://www.youtube.com/editor

- Stroome: http://www.stroome.com/
- Clesh: http://www.forbidden.co.uk/products/clesh/
- Video Tool Box: http://www.videotoolbox.com/
- WeVideo: https://www.wevideo.com/
- FileLab Video Editor: https://www.filelab.com/video-editor

Web sites that list free video editing software:

- http://desktopvideo.about.com/od/editingsoftware/a/freevidedit.htm
- http://jaypeeonline.net/freeware/free-video-editing-software-mac/
- http://www.desktop-video-guide.com/top-5-free-video-editing-software-review.html
- http://fancinematoday.com/2009/04/16/4-free-video-editing-programs-for-mac/

Tips for Apple Device Users:

There is a growing number of free or low-cost video applications for both shooting and editing video available for Apple devices. Two of the better full-featured video editing applications are iMovie and Pinnacle Studio

There is a growing number of video editing applications available on smart phones and tablets. Here are just a few of the ones I have on my devices:

- iMovie
- Pinnacle Studio
- Avid Studio
- Movie Studio
- ReelDirector
- Splice
- 8 mm
- Videolicious
- Magistro

Transcoding and compressing your video

Transcoding in a nutshell:

In general, the term transcoding refers to the process of converting a video file from one file type to another. Here are two common reasons why you might you want to transcode a video file:

1) You might want to import a video file into a specific editing program, but the video file's encoding is not compatible with the editing program, so you transcode the file into a file type that is compatible with the editing program. For instance, video is shot on a camcorder that produces an .avi file and you want to transcode the file to a MP4 so it can be used in an editing program that does not accept .avi, but does accept mpeg4.
2) You want to decrease the file size of a clip so that that it is smaller and easier to post, download, and distribute. Some file types are relatively large, e.g. mpeg-2, .mov files, etc., and they don't stream well on the web, and take a long time to download. You might want to transcode these file types to mpeg-4, which is a file type that maintains adequate quality, but makes the file size smaller.

Keep in mind: transcoding is frequently a "lossy" process. This means that when you convert a new file from the originating file, the quality of the video and audio is likely to degrade to some extent, known as digital generation loss. If you start out with a high quality clip, the degradation of quality might not be a problem. But if the clip was not of high quality to begin with, the resultant clip might not be good enough for your purposes because it looks grainy or jumpy.

Compression in a nutshell:

Compression makes a digital file smaller. When you compress a digital file you are reducing the data in it. This makes the file smaller. Here are two reasons why you might want to make a file smaller:

1) You want to keep the size of your video files smaller so that you don't take up as much data storage space or a computer or external drive.
2) You want to make a video file smaller because it is easier to transmit, via shared storage applications, posting/downloading, streaming, etc.

Like transcoding, compression is often a lossy process and will result in a file where the video and audio may be of lower quality than the original clip. The question is whether the compressed clip's quality is good enough for your purposes. And with care, it can be.

To summarize:

You might transcode a clip so that you can use it in your favorite editing program or to reduce its size. You might compress a clip to reduce its size for more convenient storage or distribution. It is important to note that quality is relative. A professional filmmaker wants to capture and share the bet video and audio possible. But the best quality also means the largest file sizes and brings problems for storing and sharing clips. So for our purposes, we don't want to produce the BEST quality video clips, because we will likely have problems storing and sharing our video files. Rather, we want to produce video clips that are GOOD ENOUGH for our purposes. And transcoding and compressing can help us balance having good enough quality with small file sizes.

Apps for Transcoding and Compressing Digital Video Files

There are many, many free applications that transcode and compress video. My favorite (right now) is MPEG Streamclip (http://www.squared5.com/). It is a high-quality and relatively easy way to to edit, compress, and transcode all within one application. It works on both Macs and PCs and you can use it to perform basic editing functions such as trimming files and combining multiple clips, and also transcode and compress your video files. Watch the tutorial that I produced that walks you through the basic steps in using it. You can watch or download it from the Results Matter Video Library at: www.cde.state.co.us/resultsmatter/RMVideoSeries_UsingTechnology.htm#top

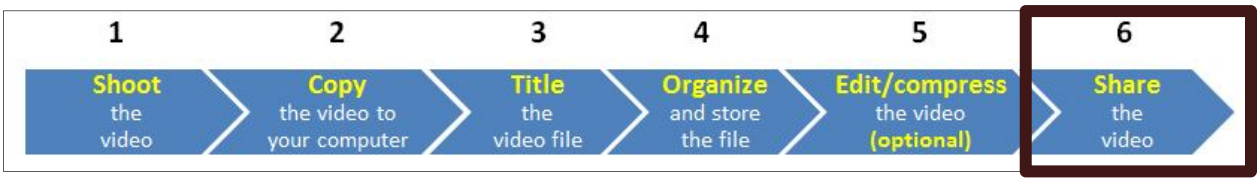
FREE RESOURCE: Apps for Compressing MPEG4 Video Files

There are many small, inexpensive digital video recorders available today. The majority of these camcorders produce mpeg4 files and these files can be relatively large; depending on the device and setting used, one minute of mpeg4 can be between 25 – 150 MB. We often need our files to be smaller – for posting online, for sharing with others, and for storage. This document reviews four free or low cost applications that can be used to compress video files.

Note: This document is updated and reposted periodically at: http://exploringtech.wordpress.com/

MORE FREE APPLICATIONS

For other information on free applications for playing, encoding, transcoding, posting, shipping, etc., download my handout of free apps: *Free Applications – Hundreds of Apps with Potential to Enhance Professional Development, Technical Assistance, and Dissemination Activities and Results* can be download from the Free Apps page of my blog at: http://exploringtech.wordpress.com/free-applications/



Ways to share and store digital video files

NOTE: Be sure to choose methods match your needs for security and are compliant with relevant regulations Consider which method will work best for you.

- ❒ **Cloud-Based File Sharing, Storage, and Backup Platforms.** In particular, I use Hightail (https://www.hightail.com) – formerly known as YouSendIt. Using a free account you can send files as large as 50 MB. I use the Pro plan which, for a very affordable yearly fee, enables me to send and receive files as large as 2 GB, and to be able to store as much as 5 GB worth of files. Highly recommended. There are many alternate applications. Dropbox (http://www.dropbox.com/) is a file synchronization/backup service that enables you to backup copies and files, access them on practically all of your devices, and selectively share files with others. I have found that Dropbox is an effective tool for sharing files with others who have an existing Dropbox account and use it on a regular basis, but that it gets confusing for those who don't have an account and don't use it on a regular basis. You can open a free account and also purchase additional space. There are many alternate services, including these popular ones:
    - o Hightail: https://www.hightail.com/
    - o SkyDrive: http://windows.microsoft.com/en-us/skydrive/download
    - o Google Drive: https://accounts.google.com/ServiceLogin
    - o Box: https://app.box.com/
    - o SugarSync: https://www.sugarsync.com/
    - o iCloud: https://www.icloud.com/
    - o Amazon Cloud Drive: http://www.amazon.com/gp/feature.html?ie=UTF8&docId=1000796931
    - o Huddle: http://www.huddle.com/
- ❒ **Shared Server**.
- ❒ Your program might have and use a **File Transfer Protocol** (FTP) that you can use to share files internally. Some programs allow you to share files externally as well, although this is not as common. Check with your IT department to see if you have one and what you can do with it.
- ❒ **Collaboration Site** (e.g., Wiggio, Ning, Edmodo)
- ❒ You can **compress video files and email them**. Note: I recommend that you never email any file larger than 5 MB.
- ❒ You can **copy files to re-writable media** such as SD cards, thumb drives, and portable external drives and share them with others. If you use this strategy be sure to handle media that contains images of

children and families in a confidential manner. You might wish to use devices that are password protected or, in certain cases, encrypted.

- ❒ You can **burn video files to CDs or DVDs** and share them with others.

There are a number of ways to archive (store) large files. Consider which method will work best for you.

- ❑ Shared servers
- ❑ External drives
- ❑ Cloud-based storage
- ❑ Copy to one-time use media
- ❑ Copy to re-writable media
- ❑ Electronic portfolios

Accessibility and Section 508 of the Rehabilitation Act of 1973

Section 508 requires that when Federal agencies develop, procure, maintain, or use electronic and information technology, Federal employees with disabilities have access to and use of information and data that is comparable to the access and use by Federal employees who are not individuals with disabilities, unless an undue burden would be imposed on the agency. Section 508 also requires that individuals with disabilities, who are members of the public seeking information or services from a Federal agency, have access to and use of information and data that is comparable to that provided to the public who are not individuals with disabilities, unless an undue burden would be imposed on the agency.

- ❒ **Sec. 508, Rehab Act of 1973:** http://www.section508.gov/index.cfm?&FuseAction=Content&ID=12
- ❒ **The W3C outline of web accessibility:** http://www.w3.org/TR/WCAG20/
- ❒ **Web Captioning Overview:** http://webaim.org/techniques/captions/

Section 508 Standards for Video and multimedia products (§ 1194.24):

(c) All training and informational video and multimedia productions which support the agency's mission, regardless of format, that contain speech or other audio information necessary for the comprehension of the content, shall be open or closed captioned.

(d) All training and informational video and multimedia productions which support the agency's mission, regardless of format, that contain visual information necessary for the comprehension of the content, shall be audio described.

(e) Display or presentation of alternate text presentation or audio descriptions shall be user-selectable unless permanent.

The National Center on Accessible Instructional Materials at Cast, Inc. has an excellent video page that provides resources for making videos accessible and meaningful:
http://aim.cast.org/learn/accessiblemedia/video

Video Captioning and Subtitling Resources

- ❑ Captioning Web**:** http://www.captions.org/softlinks.cfm
- ❑ NCAM (cc_player): http://ncam.wgbh.org/invent_build/web_multimedia/tools-guidelines/ccplayer
- ❑ Best practices in online captioning: http://joeclark.org/access/captioning/bpoc/
- ❑ Captionate: (Flash vide capturing): http://buraks.com/captionate/index.html
- ❑ YouTube CC: http://www.youtubecc.com/
- ❑ Automatic Captions in YouTube Demo: http://www.youtube.com/watch?v=kTvHIDKLFqc&feature=player_embedded
- ❑ Section 508 Compliant Video Player: http://www.business.gov/about/features/508-video-player.html?cm_mmc=GovDelivery-_-111809-_-weekly-_-internal
- ❑ MovCaptioner: http://www.synchrimedia.com/
- ❑ Magpie: http://webaim.org/techniques/captions/magpie/version2/
- ❑ Universal Subtitles: http://www.universalsubtitles.org/en/

Video file formats

For internet streaming, the top current top two formats are (this can change at any time) Flash Video and MP4 (with H.264 as the video compression codec).

Although there are many wonderful resources on the web for learning about video file formats (try searching for video file formats or extensions), FileInfo.com – The File Extensions Resource www.fileinfo.com is a particularly good resource. You can easily look up information on file extensions for all kinds of files, including text, data, image, audio, video, web, font, etc. Click on "Video Files" for descriptions of the various file formats, compatibility with PCs, Macs, and Linux, and programs that open files. Although the site covers more than 100 video formats, below are some of the most common.

.AVI (Audio/Video Interleaved) is a file format for storing and playing back movie clips with sound on Windows-based PCs. Avi is a video container or wrapper format created by Microsoft; stores video data that may be encoded in a variety of codecs. AVI files can be played by various video players, but the player must support the codec used to encode the video data

.FLV (Flash Video File) is a video file exported by the Flash Video Exporter plug-in (included with Adobe Flash) or other program with FLV file support; consists of a short header, interleaved audio, video, and metadata packets; audio and video data is stored in a similar format used by standard Flash (.SWF) files. The FLV format is an open format that is also supported by non-Adobe/Macromedia programs; FLV files may be exported from QuickTime Pro or other applications that can export to the QuickTime file format. Macromedia was acquired by Adobe in 2005, so Macromedia Flash Player is now Adobe Flash Player.

.MOV (Apple QuickTime Movie) is a common multimedia format often used for saving movies and other video files; uses a proprietary compression algorithm developed by Apple Computer; compatible with both Macintosh and Windows platforms.

.MP4 (MPEG-4) is a movie or video clip that uses MPEG-4 compression, a standard developed by the Moving Picture Experts Group (MPEG); commonly used for sharing video files on the Internet. The MPEG-4 video format uses separate compression for audio and video tracks; video is compressed with MPEG-4 video encoding; audio is compressed using AAC compression, the same type of audio compression used in .AAC files.

.MPG (MPEG Video File) is a common digital video format standardized by the Moving Picture Experts Group (MPEG); typically incorporates MPEG-1 or MPEG-2 audio and video compression; often used for creating movies that are distributed on the Internet.

.SWF (Small Web Format, pronounced "Swiff") is an animation created with Adobe Flash; may contain text as well as both vector and raster graphics; also may include interactive actions written in ActionScript; plays in Web browsers that have the Flash plug-in installed.

.WMV (Windows Media Video) is a video file based on the Microsoft Advanced Systems Format (ASF) container format and compressed with Windows Media compression; basically an .ASF file that is encoded using the Windows Media Video (WMV) codec; Windows Media audio files are saved with a .WMA extension. Microsoft Windows Media Player 9 was the last version of the Windows Media Player developed for Mac OS X; however, Mac users can use Flip4Mac WMV (also known as Microsoft Windows Media Components for QuickTime) to play WMV files.

Read more:

- http://www.reelseo.com/basics-web-video-file-formats-video-containers/
- http://www.masternewmedia.org/video_internet_television/encoding-converting-video/video-conversion-and-encoding-tools-20070411.htm
- http://en.wikipedia.org/wiki/Comparison_of_container_formats
- http://diveintomark.org/tag/give
- http://www.longtailvideo.com/support/jw-player/26/web-video-compression

A few resources and commentaries on html5:

- http://benward.me/blog/understand-the-web
- http://whatishtml5.net/
- http://diveintohtml5.org/video.html

NEW: How to Get Your Video Playable on ALL Devices: vid.ly says "You give us one video and we create all the required formats to ensure your video will playback on every browser and device in the market." http://m.vid.ly/

Resources to help you keep up with digital video

Creative Cow: http://newsletters.creativecow.net/
Studio Monthly: http://www.omeda.com/stu/
Studiodaily.com e-newsletter: http://www.studiodaily.com/main/eletter_subscribe.html
HD Studio: http://www.studiodaily.com/hdstudio/signup.html
Videatives Views: https://www.videatives.com/content-new/videatives/videatives_views/index.php
Video Technology Magazine: http://www.videotechnology.com/
Learn about the Flash video (FLV) format. http://www.adobe.com/devnet/video/
Flash video learning guide: http://www.adobe.com/devnet/flash/articles/video_guide.html
School Video News: http://www.school-video-news.com/
Free Technology for Teachers: http://www.freetech4teachers.com/p/video-creation-resources.html
Videomaker: http://www.videomaker.com/
Pew Internet and American Life Project: http://pewinternet.org/

Computer hardware for editing digital video

This checklist outlines basic advice for hardware that works well for using digital video. Both PCs and Macs have their strengths and limitations and their advocates and detractors. Use the platform that works best for you AND is acceptable to your agency or program's IT policies and resources. Whichever you use, choose the most recent DEPENDABLE version of the operating system (not always the most recent) and configure the computer with enough power for the applications that you intend to use, and then some extra. Please remember that operating systems are updated continually.

If you want to be able to edit video with power and speed, to the extent that you can afford:

- ❑ Maximize the available processing speed
- ❑ Maximize the internal storage capacity (hard drive)
- ❑ Maximize the available memory
- ❑ Be sure the computer has a CD-ROM/DVD drive for playing and burning
- ❑ Purchase high quality video and audio cards (these are often an upgrade)
- ❑ Most recent version of connectivity (e.g. USB3, Firewire, thunderbolt) ports
- ❑ Purchase an external hard drive or two for storing/archiving video files

Please note: While convenient because of their small size and affordability, netbooks often do not have the capacity to do serious video editing. Tablets are increasingly developing the capacity to shoot, edit, and share video files.

Other kinds of video to explore

Free video conferencing applications

- ❒ Skype: http://www.skype.com/
- ❒ ooVoo: http://www.oovoo.com/
- ❒ Google Hangouts: http://www.google.com/+/learnmore/hangouts/
- ❒ iChat (mac): http://www.apple.com/macosx/what-is-macosx/ichat.html
- ❒ AIM: http://www.aim.com/
- ❒ SightSpeed (Logitech): http://www.sightspeed.com/

Free video screen capture applications

- ❒ Screenr: http://screenr.com/
- ❒ CamStudio: http://camstudio.org/
- ❒ Screencast-o-matic: http://www.screencast-o-matic.com/
- ❒ Jing: http://www.jingproject.com
- ❒ Directory of Screen Capture, Screencasting and Software Demo Tools: http://c4lpt.co.uk/Directory/Tools/capture.html

Make movies online

- ❒ Animoto: http://animoto.com/